

3.2 Biological Resources

3.2.1 Introduction

This section presents information on biological resources within and adjacent to the proposed project site, and also identifies potential impacts to sensitive biological resources as a result of the construction and operation of the proposed project. Section 3.2.2 describes regulations that are applicable to the biological resources present at the site. Section 3.2.3 describes the existing biological resources at the site, namely vegetation and plants, wetlands, wildlife and special status species. Section 3.2.4 describes impacts and mitigation measures including the methodology and criteria for determining significance. Mitigation measures are proposed for any impact determined to be significant.

3.2.2 Regulatory Setting

3.2.2.1 Federal, State, and Local Regulations

Federal Endangered Species Act (ESA) of 1973. Title 16, United States Code, section 1531 et seq., and Title 50, Code of Federal Regulations, part 17.1 et seq., designate and provide for the protection of threatened and endangered plant and animal species, and their critical habitat. The administering agency is the U.S. Fish and Wildlife Service (USFWS). Two sections of this Act are relevant to the proposed project:

Under Section 9, the USFWS has defined the “taking” of federally listed species as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or to attempt to engage in such conduct.” Harm includes impacts to the habitat of federally listed species where it results in an actual death or injures the species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Designated critical habitat of federally listed species also is protected from destruction or adverse modification by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

Under Section 10, in order to “take” a federally listed species, an incidental take permit pursuant to Section 10(a) of the Act must be obtained. The USFWS may issue a permit upon completion of a satisfactory habitat conservation plan (HCP) for the listed species that considers, among other things, measures that would be taken to monitor and mitigate proposed project impacts.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act (MBTA) makes it unlawful to pursue, hunt, capture, kill, or possess or attempt such an action towards any bird listed in wildlife protection treaties between the United States and several countries including Great Britain, Mexico, Japan, and countries that are part of the former Union of Soviet States. A “migratory bird” includes the living bird, any parts of the bird, its nests or eggs. Disturbance of the nest of a migratory bird requires a permit issued by the USFWS pursuant to Title 50 of the Code of Federal Regulations (CFR). Almost all birds, except for some nonnative pests, are covered by the Act. The administering agency is the USFWS.

Clean Water Act of 1977 (33 U.S.C. 1251 et seq.). The Clean Water Act (CWA, also known as the Federal Water Pollution Control Act) is the principal federal law governing protection of wetlands and water pollution control. This Act provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation’s waters.

Section 402 of the CWA, which establishes conditions and permitting for point-source discharges of pollutants under the National Pollutant Discharge Elimination System (NPDES), is applicable to the proposed project. Pursuant to NPDES requirements, a General Construction Activity Storm Water Permit would be required for project construction. A Storm-Water Pollution Prevention Plan (SWPPP) must be prepared in order to obtain the NPDES permit. The SWPPP would outline Best Management Practices (BMPs) to minimize water contamination during construction. These may include, but are not limited to, “in the dry” crossings of streams, seeding or revegetation of disturbed areas according to an established re-vegetation and landscaping plan, using water bars, diversion channels and terraces to control erosion on steep terrain, maintaining construction sites in a sanitary condition, disposal of wastes at appropriate locations, and control of stream sediments. A notice of intent (NOI) would also need to be submitted to the State Water Resources Board to amend CDWR’s existing statewide General Permit for Discharge of Aquatic Pesticides for Aquatic Weed Control to include the new reservoir. Like the General Construction Permit, this permit also requires BMPs for the application of pesticides and water quality monitoring.

California Endangered Species Act of 1984 (Fish and Game Code Section 2050 et seq.). This Act provides for the protection of rare, threatened, and endangered plants and animals, as recognized by the California Department of Fish and Game (CDFG), and prohibits the unauthorized taking of such species. State agencies are required to consult with the CDFG on actions that may affect listed or candidate species. The California Endangered Species Act greatly expanded upon protection afforded to rare, threatened, and endangered plants under the earlier California Native Plant Protection Act of 1977. If a proposed project would result in the take of a state listed endangered, threatened or candidate species incidental to an otherwise lawful action, the CDFG may authorize such take through a permit (“2081 permit”) provided certain conditions are met.

Fully Protected Species. Fish and Game Code sections 3511, 4700, 5050, and 5515 prohibit the take of animals that are classified as fully protected in California.

Nest or Eggs – Take, Possess, or Destroy. Fish and Game Code section 3503 protects California’s birds by making it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird.

Birds of Prey – Take, Possess, or Destroy. Fish and Game Code section 3503.5 specifically protects California’s birds of prey in the orders Falconiformes and Strigiformes by making it unlawful to take, possess, or destroy any such birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

Migratory Birds – Take or Possession. Fish and Game Code section 3513 protects California’s migratory non-game birds by making it unlawful to take or possess any migratory non-game bird, as designated in the MBTA, or any part of such migratory non-game bird.

Streambed Alteration Agreement. Fish and Game Code section 1600 et seq. regulates activities by any entity that may divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake in California designated by the CDFG in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit.

Porter-Cologne Water Quality Control Act. Regional water quality control boards regulate the “discharge of waste” to “waters of the state.” All projects proposing to discharge waste that could affect waters of the state must file a waste discharge report with the appropriate regional board. The board responds to the report by

issuing waste discharge requirements (WDR) or by waiving WDRs for that project discharge. Both of the terms “discharge of waste” and “waters of the state” are broadly defined such that discharges of waste include fill, any material resulting from human activity, or any other “discharge.” Isolated wetlands within California, which are no longer considered “waters of the United States” covered under Section 404 of the CWA, would still be covered under the Porter-Cologne Act.

3.2.2.2 Regulatory Agencies

The Ventura Office of the USFWS, the Fresno Office of the CDFG, and the Lahontan Regional Water Quality Control Board are the primary contact agencies for administering the regulations and issuing the permits identified above that directly or indirectly affect biological resources.

3.2.2.3 Habitat Conservation Plans, Policies, or Lands with Special Status

The proposed project does not overlap with any habitat conservation plans (HCPs) or natural community conservation plans (NCCPs).

The South Coast Missing Linkages Project, while not an approved plan or policy, is a planning tool that was developed to improve the effectiveness of land conservation efforts in the region. Figure 3-7 illustrates the linkage design for the Tehachapi region (Penrod et al. 2003). The objective of the South Coast Missing Linkages Project is to preserve important linkages for wildlife habitat to maximize the function of remaining wildlands and ensure connection to other ecoregions. The Tehachapi East Afterbay would be located approximately one to two miles southeast of lands in the Tehachapi foothills that are included in the linkage design.

3.2.3 Environmental Setting

3.2.3.1 Regional Setting

The Tehachapi East Afterbay Project would be located at the west end of the Mojave Desert, where the tip of the Antelope Valley rises west towards Tejon Pass, east of I-5 (Figures 2-1 and 2-2) at approximately 3,100 feet elevation. The composition of the vegetation is strongly influenced by the geography and geology of the region.

Landform processes, such as uplift, bedrock decomposition, erosion-deposition and alluvium stratification, have produced a semicircular fan along the western edges of the Antelope Valley. Some of the soil formations, such as clayey loams, cateñas (Birkeland 1984), and “dry bog” deposits (Twisselmann 1967), provide low competition habitats for a rich assemblage of native annual plant species. These specialized plant habitats include some of California’s most colorful wildflower displays.

A Natural Resources Conservation Service (NRCS) report for the Antelope Valley (1970) identifies Gaviota-Hilsholm and Hanford-Greenfield soils for the proposed project area. Any of the U.S. Soil Conservation Service soil classifications must be considered cautiously when relating their mapped units to native vegetation. These classifications are poorly related to native plant habitats because they are broad classes designed to serve agricultural and other human uses. The localized conditions within the soil unit, especially slope aspect, soil texture, drainage, and parent materials, are the determining factors for biota occurrence, especially in arid regions. The weak soil development of arid regions also is a problem for using soil classifications to determine

vegetation resources. Climate in the region is arid, with an average mean rainfall of approximately 7.4 inches in the project area (Lancaster, California), with the vast majority occurring from winter storms between December and March (The Weather Channel 2003). Rainfall is highly variable and localized in this region and is greatly affected by how much the individual winter storms “punch” through Tejon pass and spill over into Antelope Valley, especially the storms that occur in the spring and fall months. In some years, a few miles east or west in this region can have very different vegetation growth responses.

The general region is botanically diverse, wedged between the desert, the Sierra Nevada, the Great Central Valley and the Transverse Ranges. Though varied floristic influences exist near the proposed project site, the pre-human vegetation type was probably most characteristic of the arid grassy foothills of the southern San Joaquin Valley. The site is now altered and disturbed, and the plant composition is now most referable to the disturbed, successional vegetation associations of the southern San Joaquin and the Antelope Valleys.

Like much of the San Joaquin Valley, the vegetation in the project region is characteristic of successional plant associations. This is an important vegetation condition to consider, because the successional appearance of vegetation may lead one to believe that the area is disturbed and of low ecological value. It is probably safer to evaluate areas in this region based on the soil integrity and lack of landform alteration rather than to rely solely on the dominant vegetation type present to indicate integrity and diversity. Sparseness of woody plants and the density of forbs are, however, typical of disturbed areas.

3.2.3.2 Vegetation and Plants

Most of the site is located on a terraced flat that has a clayey to sandy loam soil. The flats on this terrace appear to have been plowed and dry farmed previously, which severely affects the soil and vegetation. At the southern edge of the proposed spoil pile (Spoil #1 in Figure 2-5), the topography breaks into a broad alluvial floodpath where soils are sandier than up on the terraced flats. The broad alluvial floodpath is a low gradient drainage path without channels or obvious watercourses. It is defined by the sandy soils and alluvial fill, more than the vegetation or geomorphology. The interface between the terrace and the alluvial flat is marked by a smooth slope (Photo 3) (all photos are in Appendix C.1, Attachment 1) with erosion cut drainages at various intervals (Photo 4). Plant diversity in the unnamed drainage originating from the Tehachapi Mountains (Figure 2-2 and Photos 14 and 15) is greatly reduced where the drainage enters the project footprint because an earthen dam to the north of the proposed project site traps surface water. Cattle activity is intensive in the drainage, and the soils have been altered into a nearly abiotic condition in comparison to intact soil-biota relationships in undisturbed drainages.

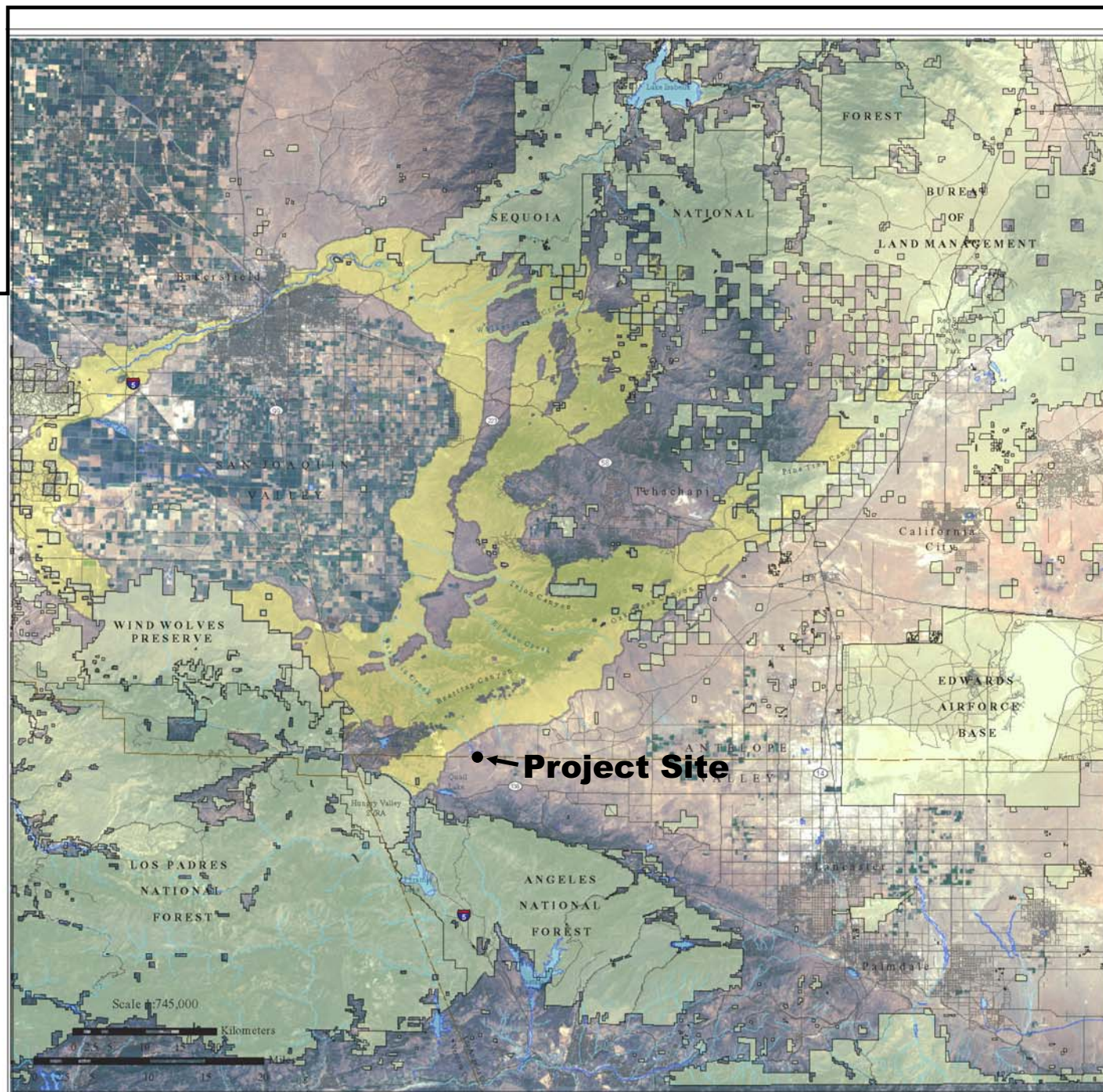
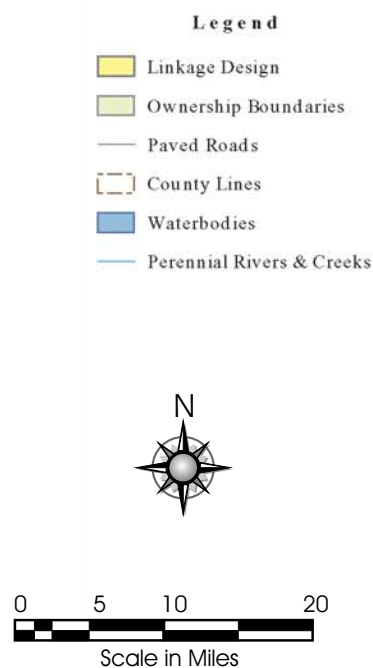
By contrast, the terraced land just to the north of the section line fence and the proposed project site is more intact, apparently less impacted by plowing and grazing. Native grasses and wildflowers are more frequent in this area (Photos 1 and 10). At this point the vegetation becomes noticeably more diverse; grasses, forbs, insects, wildflowers, all healthier, even though the proposed project site and this area look similar at a glance. As one continues north, the terrain gently slopes up into low foothills divided by shallow drainage paths.

Vegetation at the proposed project site was surveyed on two different occasions in April and May 2004 and mapped (Figure 3-8) into seven weakly differentiated types summarized below. As a whole, the vegetation is primarily composed of disturbed plant associations and all the mapped types for this site are basically weed-

Tehachapi East Afterbay Project

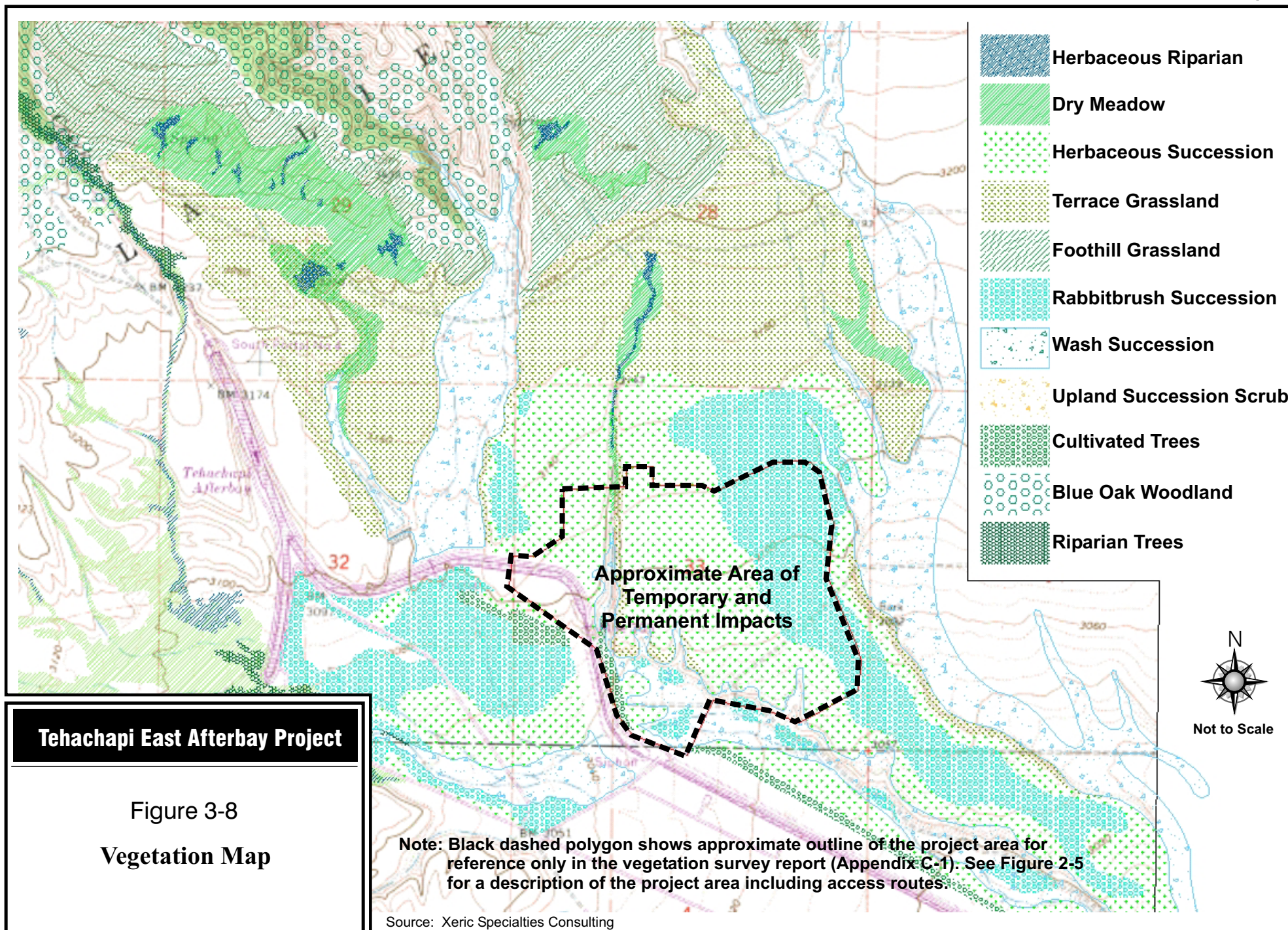
Figure 3-7

Linkage Design for the Tehachapi Connection



Source: Penrod et al. 2003
from the South Coast
Missing Linkages Project

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dominated herbaceous stands with rabbitbrush scrubs. The divisions between the types are subjective and ambiguous if only the dominant covers (exotic annual herbs in most of the associations) are used to type vegetation. A complete description of the mapping units and plant list are provided in Appendix C.1.

- *Herbaceous succession* is mapped for much of the vegetation in the project area, especially the broad flat terraced landform where plowing/dry farming once occurred.
- *Rabbitbrush succession* is mapped for areas where rubber rabbitbrush (*Chrysothamnus nauseosus* var. *hololeucas* and var. *mohavensis*) occurs in prominent stands (Photos 7 and 8) among weedy herb covers that are, on average, still the dominant cover despite the shrub frequency. This association is more or less the same as the herbaceous succession type, except that rabbitbrush is more frequent.
- *Wash scrub succession* is mapped for the channel (Photo 11), erosion cut drainages (Photo 4) and alluvial floodpaths (Photo 3). The vegetation is ambiguous for much of these units in the current disturbed state. The meandering nature, variable surface flows and active fill of the drainages are additional local factors maintaining the associated vegetation in a seral or weedy state. Exotic annual herbs are the dominant covers mostly.
- *Herbaceous riparian* is mapped in the natural drainage that “flows” between the proposed reservoir site and the existing aqueduct supports a low diversity riparian stand of vegetation (Photo 15) from a tapped spring and is contained to the north of the project footprint by an earthen dam (Photo 14).
- *Terrace grassland* association weakly occurs in the project footprint, but is dominant on the sloping terraces and foothills to the north (Photo 10) and probably was the primary type of vegetation in the proposed project area prior to the plowing of the soil and other human-induced disturbances. Strips of this vegetation type that have not been plowed persist along the edges of the disturbed terrace landforms, mostly associated with the drainage between the existing afterbay and proposed reservoir site, the southwest edge of the project terrace landform and along the banks of the drainage washes. Nodding needlegrass (*Nasella cernua*), bluegrass (*Poa secunda*) and goldfields (*Lasthenia californica*) were the most conspicuous plants of this association, along with other exotic and native annual grasses and forbs. Rabbitbrush is nearly absent in this association; another indicator of lower disturbance levels.
- *Dry meadow* borders some of the riparian strips to the north of the proposed project site. This vegetation is transitional between other vegetation types. It is characterized by soil moisture from winter and spring rains or weak surface run-offs, loamy soils with increased clays and silts, and a drying season sufficient to exclude obligate riparian plants. Facultative riparian plants such as narrow-leaf milkweed (*Asclepias fascicularis*), willow dock (*Rumex salicifolius*) and mesic weeds such as barley (*Hordeum murinum*), dock (*Rumex crispus*), and mallow (*Malva parviflora*) are most characteristic of this vegetation type.

3.2.3.3 Wildlife

The project area would be located within the juncture of different ecological regions: the Northern Great Basin, Transverse and Coast Ranges, West Mojave and Sonoran deserts, Tehachapi Mountains, Sierra Nevada, and Great Central Valley. These regions serve as an important wildlife corridor from the Sierra Nevada ranges to the Angeles and Los Padres National Forests and the ocean. The large number of ecotones in this region are due in part to its location in the San Andreas Rift zone. The variety of relief, edaphic conditions, surface hydrology and subsurface conditions, floristic diversity, and wetlands support a rich diversity of fauna. The Tehachapis provide not only connectivity for montane species, but also for species associated with the San Joaquin Valley foothills and grasslands, and for desert species along the southeastern slopes of the Tehachapi Mountains (Penrod et al. 2003). Of the approximately 100 focal species identified by the South Coast Missing Linkages Project for the 15 linkages in the South Coast Ecoregion, over 30 are associated with the Tehachapi linkage because of its unique biogeography. Many of these species need extensive wildlands to survive, like the California spotted owl, American badger, mule deer, and mountain lion (Penrod et al. 2003). Most of the California Aqueduct, including the project footprint, lies outside of the

linkage design for the South Coast Missing Linkages Project. It should be noted that the Aqueduct and its operational areas are generally an impediment to wildlife movement and do not support movement corridors.

Wildlife surveys within the project footprint and adjacent areas were conducted in April and May 2004 to ensure that the entire project footprint was covered. A list of species observed during the surveys is included in Tables 1 and 2 of Appendix C.2. The area surrounding the T2A Alternative (see Section 4 for a description of this alternative) had previously been surveyed in 2001 by Glenn Lukos and Associates (GLA) (GLA 2001b) and in 2003 during the alternatives development phase (Aspen 2003). The wildlife observed in or near the proposed project site during these surveys has also been noted in these tables.

3.2.3.4 Fish

Appendix C.3 provides a list of fish species that can potentially occur in the Aqueduct, most of which are nonnative species (Starr 2003). On this list, the Sacramento splittail (*Pogonichthys macrolepidotus*), hardhead (*Mylopharodon conocephalus*), and California roach (*Lavinia symmetricus*) are listed as California species of special concern. There are no California fully protected species on this list. Although people can fish along the Aqueduct, the fish that are there come from the San Joaquin delta. Fish are not planted in the Aqueduct by the CDWR and the facilities are not managed as a fishery.

3.2.3.5 Wetlands and Drainage Features

The project footprint would directly affect two drainages that were evaluated in the jurisdictional delineation completed by GLA (2001a), identified as Drainage A and Drainage D.¹ Drainage A is part of the Oso Creek watershed that drains east across the southern limit of the proposed project area. This drainage was interrupted at about the location of Cottonwood Chutes when the Aqueduct was originally constructed. Drainage A supports wetland and riparian vegetation consisting of red willow (*Salix laevigata*), Fremont's cottonwood (*Populus fremontii*), and mulefat (*Baccharis salicifolia*) approximately 30 feet wide at an existing dirt road crossing that will be used for access to the southern part of the proposed project site. Drainage D is unnamed (referred to throughout this document as "unnamed drainage") on U.S. Geological Survey (USGS) maps and originates between the Little Sycamore Canyon and Big Sycamore Canyon watersheds, which drain southeast from the foothills of the Tehachapi Mountains (Figure 2-2). Drainage D in this segment does not exhibit any wetland characteristics. It occurs within a steeply incised U-shaped canyon that opens at the East Branch of the Aqueduct; by the time the drainage reaches the Aqueduct it is indiscernible (GLA 2001a).

Because all of the drainage or wetland features within or adjacent to the project footprint terminate on site or shortly beyond the project boundary, they are isolated, intrastate waters not subject to U.S. Army Corps of Engineers jurisdiction. These isolated intrastate waters are, however, subject to Regional Water Quality Control Board jurisdiction under the Porter-Cologne Act. Both drainages exhibit bed and bank features or other flow characteristics of a streambed or wetland that are subject to CDFG jurisdiction. The width of Drainage A that falls under CDFG jurisdiction includes a narrow riparian zone. Drainage D does not support substantial riparian vegetation and so the area that potentially falls within CDFG jurisdiction is limited to the drainage feature itself located at the bottom of the canyon.

¹ This report is available at the CDWR office located at 770 Fairmont Avenue, Suite 102, Glendale, CA 91203-1035.

3.2.3.6 Special Status Species

Special status species include flora, fauna, and vegetation communities that are listed as threatened or endangered or candidate species under the California or federal Endangered Species Acts (CESA or FESA), California species of special concern, federal species of concern, species that are listed as fully protected by the CDFG, and List 1B and List 2 plants considered by the California Native Plant Society (CNPS) to be rare, threatened, or endangered in California and beyond. Based on a review of the California Natural Diversity Database (CDFG 2003) for the La Liebre Ranch and Lebec USGS quads and the habitat conditions observed during the 2003 and 2004 wildlife surveys, the special status species or plant communities listed in Table 3-15 could potentially occur within or near the proposed project area. The species highlighted in bold in Table 3-15 were observed within or adjacent to the proposed project and construction footprint.

Wildlife. No federal- or state-listed threatened or endangered wildlife species were observed during the field surveys or are known to occur within the project area. Six bird species of concern and one lizard species of concern are present within or adjacent to the proposed project area, including the existing Aqueduct adjacent to the proposed project site.

Whereas federal- or state-listed threatened or endangered species are afforded legal protection under FESA or CESA, the classifications, federal species of concern or California species of special concern, do not afford any legal protection. From the federal standpoint, species of concern is an informal term that refers to those species believed to be declining or be in need of concentrated conservation actions to prevent decline. These species receive no legal protection under FESA or CESA and the use of the term does not mean that they will eventually be proposed for listing. At one extreme, it may only be necessary to monitor the health of a species and its habitat. At the other extreme, the species may eventually require listing as threatened or endangered.

From the State standpoint, the designation, species of special concern, is intended to result in special consideration for these animals by CDFG, land managers, consulting biologists, and others, and is intended to focus attention on the species to help avert the need for costly listing under federal and State endangered species laws and cumbersome recovery efforts that might ultimately be required. This designation also is intended to stimulate collection of additional information on the biology, distribution, and status of poorly known at-risk species, and focus research and management attention on them. CDFG staff is instructed to consider species of concern during (1) the environmental review process, (2) conservation planning process, (3) the preparation of management plans for CDFG lands, and (4) inventories, surveys, and monitoring conducted either by the CDFG or others with whom the CDFG is cooperating.

Figure 3-9 illustrates the occurrence of the burrowing owl, coast horned lizard, loggerhead shrike and California horned lark relative to the project features; the other bird species of concern that were observed were either present throughout the project area or associated only with the Aqueduct. There may be several reasons why other species on the list provided in Table 3-15 were not found. These might include limited habitat resources, habitat fragmentation and distance between viable populations. For example, rock outcrops, cliffs or wooded areas suitable for bat or raptor roosting are generally absent. Sandy, friable soils preferred by reptiles and small mammals are generally absent from the area that would be occupied by the reservoir and the spoil pile; soils in this area are more compacted. Vegetation cover is generally sparse and not very diverse. Prey populations may not support a permanent population of larger mammals or raptors. Also, many small

mammals and reptiles are cryptic (i.e., their coloration blends well into the background), and their daily or seasonal habits make them difficult to observe without repeated or intense surveys.

However, the exception to limited habitat resources occurs within the unnamed drainage and the erosional gullies that lead into the drainage. These areas are protected from harsher climate conditions that occur in the upland areas, the exposed alluvial soil may be easier to burrow, and water that collects along the drainage and at the subsurface results in better water availability for plants and animals. Consequently, more burrows (i.e., nests) and other evidence of wildlife activity are present in this area relative to upland areas and the open alluvial floodplains. Relatively higher availability of rodent prey and insects attracted to the vegetation and moist areas along the drainage are attractive to birds, including burrowing owl. Although burrowing owls were never observed during the surveys, pellets and potentially occupied burrows were found in the drainage starting at about 900 feet north of the proposed project limited as defined by the location of Laydown Area #1 (see Figure 3-9). Their presence south of this point, within the proposed project area cannot be discounted.

Birds occupy the Aqueduct adjacent to the proposed project area and all portions of the proposed project area. A California horned lark nest (*Eremophila alpestris actia*) was found near the northern limit of the proposed reservoir site during the 2004 field surveys. A family group of loggerhead shrike (*Lanius ludovicianus*) was also observed within the proposed project area although the nest was not located. Activities that may affect native birds are regulated by the MBTA and the California Fish and Game Code. Willow flycatcher (*Empidonax traillii*) and yellow-billed cuckoo (*Coccyzus americanus*) have been observed approximately 1.25 miles southwest of the project area during previous surveys (GLA 2001b; Aspen 2003), but the absence of riparian vegetation makes their occurrence within the proposed project site extremely unlikely.

Scat of the coast horned lizard (*Phrynosoma coronatum*) was observed at the southern end of the unnamed drainage near the proposed outlet works (see Figure 3-9). Although the scat may be from the desert horned lizard (*Phrynosoma platyrhinos*), the location of the proposed project site is generally outside this species' range, making this unlikely. Focused surveys included among the mitigation measures will confirm this as well as the extent of the habitat occupied by the coast horned lizard within the project area. This and other reptile species are very cryptic, making them difficult to see from far away, and it is difficult to predict where and when is the best time to observe them above ground. Focused surveys are planned for September-October 2004 when the species is relatively more active prior to winter hibernation (see Section 3.2.4).

The South Coast Missing Linkages Project modeled linkages, interpreted as the best potential route between protected core areas, for 15 species with a diverse range of habitat and preservation needs that would be representative of the entire list of species considered by that project. While none of the modeling results for these species overlapped with the proposed project footprint, the results for two species, the Tehachapi pocket mouse (*Perognathus alticola inexpectatus*) and western pond turtle (*Clemmys marmorata*), were within two miles of the proposed project area. Permanent aquatic habitat that may support the pond turtle is absent from the proposed project site. Soil over most of the proposed reservoir and spoil pile sites is too compacted and clayey for the pocket mouse to burrow, and vegetation cover is relatively sparse.

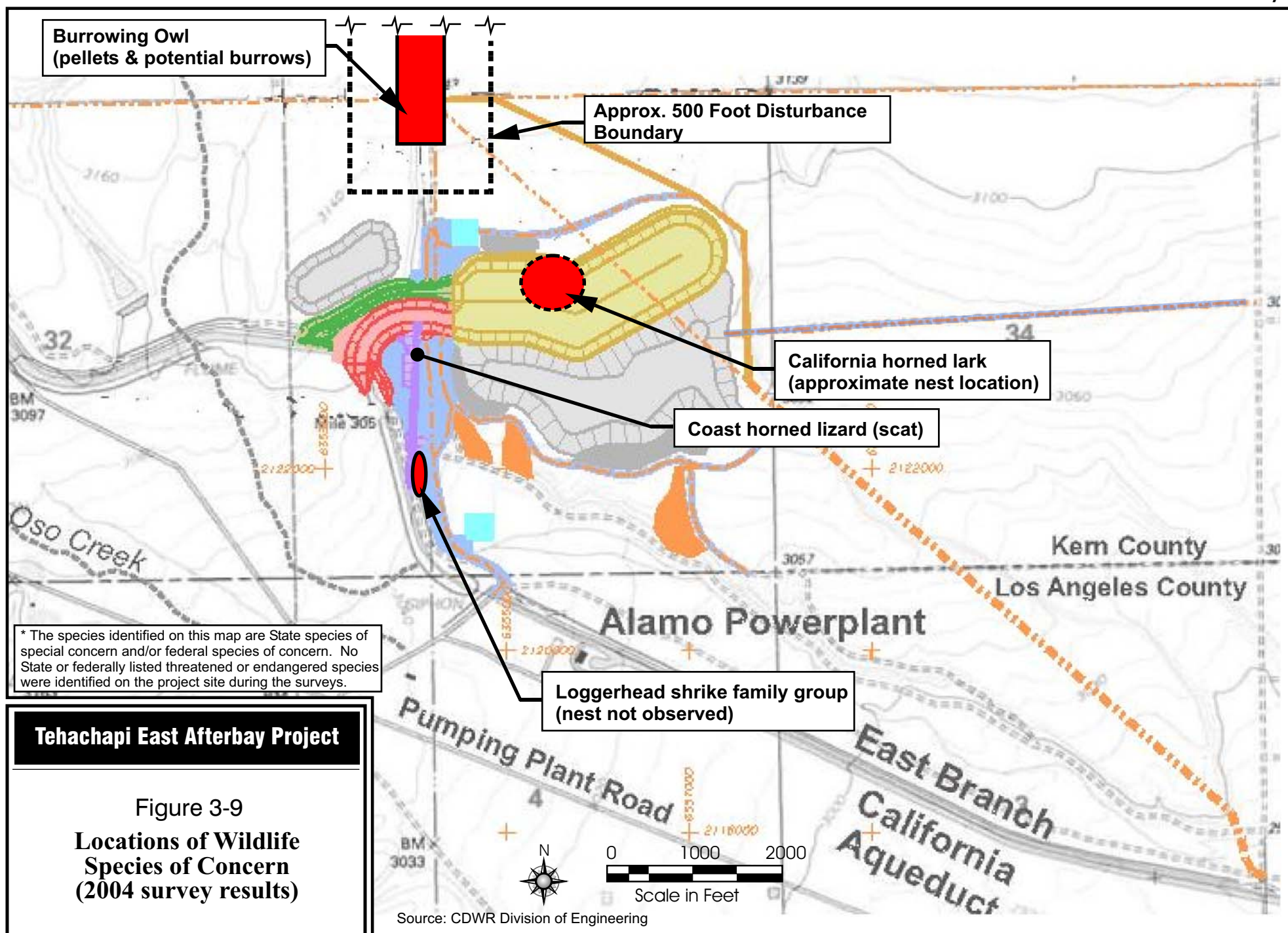


Table 3-15. Special Status Species that Occur or Potentially Occur Within or Near the Project Footprint			
Scientific Name	Common Name	State/Federal Status	Comments
PLANTS (2 species)			
<i>Fremontodendron mexicanum</i>	Mexican flannel bush	CNPS List 1B/FE	Not present, unsuitable soil conditions, generally not present at this elevation.
<i>Erodium macrophyllum</i>	round-leaved filaree	CNPS List 2/None	Present in foothills to the north of the proposed project area.
PLANT COMMUNITIES (3 communities)			
Southern cottonwood willow riparian Forest	N/A	State ranked as a threatened plant community	Present within the Oso Creek drainage southwest of the project site.
Valley needlegrass grassland	N/A	State ranked as a threatened plant community	Identified north of the proposed project area, in foothills relatively unaffected by dry farming and less affected by grazing
Valley oak woodland	N/A	State ranked as a threatened plant community	Not present within or near the proposed project area.
AMPHIBIANS (1 species)			
<i>Scaphiopus hammondi</i>	western spadefoot	CSC/None	May occur in and near unnamed drainage; stock ponds at the section line fence north or the proposed reservoir site provide potential breeding habitat
REPTILES (4 species)			
<i>Phrynosoma coronatum</i>	coast horned lizard	CSC/FSC	Scat observed at two locations in unnamed drainage bordering east side of aqueduct; not likely to occur on proposed reservoir site because of past farming practices do not maintain friable or shallow sandy soils and adequate vegetation cover, but may occur in open grassland and scrub elsewhere in project area. May be desert horned lizard (<i>Phrynosoma platyrhinos</i>), but unlikely because this is generally outside the species' range.
<i>Salvadora hexalepis virgulata</i>	coast patch-nosed snake	CSC/None	May occur in patches of scrub associated with floodplain of the unnamed drainage; not expected to occur in grassland in proposed reservoir or spoil pile sites
<i>Anniella pulchra pulchra</i>	silvery legless lizard	CSC/FSC	May occur in sandy soils associated with scrub habitats in floodplain and adjacent banks of the unnamed drainage
<i>Thamnophis hammondi</i>	two-striped garter snake	CSC/None	May occur in freshwater marsh habitats and stock pond associated with the unnamed drainage; has recently been found by Impact Sciences around vernal pools approx. seven air miles SW of project area (H. Hill, pers. comm., 2004)

Table 3-15. Special Status Species that Occur or Potentially Occur Within or Near the Project Footprint			
Scientific Name	Common Name	State/Federal Status	Comments
BIRDS (20 species)			
<i>Athene cunicularia</i>	burrowing owl	CSC/FSC	Project area provides foraging habitat, but no suitable nesting or roosting habitat observed in area
<i>Bucephala albeola</i>	bullhead	CSC/None	Aqueduct, observed during 2003 surveys
<i>Plegadis chihi</i>	white-faced ibis	CSC/None	Aqueduct
<i>Gymnogyps californianus</i>	California condor	SE/FE	Project area provides marginal foraging habitat for this species, but nearest known roost and nest sites are over 10 miles from project area.
<i>Accipiter cooperi</i>	Cooper's hawk	CSC/None	Trees in upper part of the unnamed drainage may provide suitable nesting habitat; may forage over project area
<i>Accipiter striatus</i>	sharp-shinned hawk	CSC/None	Trees in upper part of the unnamed drainage may provide suitable nesting habitat; may forage over project area during winter
<i>Aquila chrysaetos</i>	golden eagle	CFP, CSC/FSC	Project area provides foraging habitat for eagles that may nest in adjacent mountains
<i>Buteo regalis</i>	ferruginous hawk	CSC/FSC	Project area provides suitable foraging habitat for winter transients
<i>Buteo swainsoni</i>	Swainson's hawk	ST/None	Potential winter transient to project area; trees in Oso Creek, Little Sycamore Canyon to the west and elsewhere provide suitable roosting habitat
<i>Circus cyaneus</i>	northern harrier	CSC/None	May forage in project area; trees in Oso Creek, Little Sycamore Canyon to the west and elsewhere provide suitable roosting habitat
<i>Falco mexicanus</i>	prairie falcon	CSC/None	Project area provides foraging habitat for falcons that may nest in adjacent mountains
<i>Numenius americanus</i>	long-billed curlew	CSC/FSC	Project area provides suitable foraging and roosting habitat for wintering birds
<i>Charadrius montanus</i>	mountain plover	CSC/None	Idem
<i>Coccyzus americanus occidentalis</i>	western yellow-billed cuckoo	SE/FE	This species was observed in 2002 in riparian woodland approximately five air miles southwest of the proposed project site by biologists with Impact Sciences during biological surveys for the Tejon Ranch Company (Holly Hill, pers. comm., 2004). It was again observed by Impact Sciences staff accompanying Aspen biologists in 2003 approximately 1.25 miles southwest of the project site in riparian habitat of the Oso Creek drainage (Aspen, 2003). It was not observed in or around the project area during surveys for this report. It is highly unlikely that this species would be present in the project area because of the absence of riparian vegetation, which persists only as narrow windrows of tamarisk and small, isolated clumps of willow and mule-fat in the unnamed drainage.
<i>Empidonax traillii</i>	willow flycatcher	SE/FE	This species (subspecies identity unknown) was observed in riparian woodland approximately 1.25 miles southwest of the proposed project area by Aspen biologists in 2003 during biological surveys for a different project alternative (Aspen, 2003). It was not observed in or around the project area during surveys for this report. Moreover, it is highly unlikely that it would be present here because of the absence of riparian vegetation, which is present here only as narrow windrows of tamarisk and small, isolated clumps of willow and mule-fat in the unnamed drainage.
<i>Lanius ludovicianus</i>	loggerhead shrike	CSC/None	Family group of four pair of adults and two fledglings observed in project area, nesting location unknown.
<i>Eremophila alpestris actia</i>	California horned lark	CSC/None	Commonly observed throughout project area during site visits
<i>Amphispiza belli belli</i>	Bell's sage sparrow	CSC/FSC	Project area provides marginal-to moderate-quality foraging habitat and marginal nesting habitat for this species; known from sites only a few miles SW of project area (Hunt, pers. observ., 2004)

Table 3-15. Special Status Species that Occur or Potentially Occur Within or Near the Project Footprint			
Scientific Name	Common Name	State/Federal Status	Comments
<i>Chondestes grammacus</i>	lark sparrow	None/FSC	Commonly observed throughout project area during 6 April site visit
<i>Agelaius tricolor</i>	Tricolored blackbird	CSC/FSC	May forage in project area from known breeding sites several miles west and southwest. (Hunt, pers. observ., 2004)
MAMMALS (11 species)			
<i>Antrozous pallidus</i>	pallid bat	CSC/FSC	May forage over project area; no roosting habitat in project area but present in Little Sycamore Canyon to the west
<i>Corynorhinus townsendii</i>	big-eared bat	CSC/FSC	Idem
<i>Myotis thysanodes</i>	fringed myotis	CSC/FSC	Idem
<i>Myotis yumanensis</i>	Yuma myotis	CSC/FSC	Idem
<i>Myotis ciliolabrum</i>	small-footed myotis	CSC/FSC	Idem
<i>Myotis volans</i>	long-legged myotis	CSC/FSC	Idem
<i>Lasiurus blossevillii</i>	western red bat	CSC/None	Idem
<i>Perognathus alticola inexpectatus</i>	Tehachapi pocket mouse	CSC/None	Unlikely; soils located in the proposed reservoir and spoil areas are friable enough for burrowing mammals, however, the dominant vegetation in the proposed project area is non-native annual grassland, whereas this species has only been found in scrub habitats, and the reservoir and spoil area sites appear to have been extensively farmed in the past
<i>Onychomys torridus</i>	southern grasshopper mouse	None/FSC	May occur in grassland in project area
<i>Taxidea taxus</i>	American badger	CSC/None	May forage in project area; no dens observed in project area
<i>Vulpes macrotis mutica</i>	San Joaquin kit fox	ST/FE	Known geographic range extends only to southern floor of San Joaquin Valley around foothills of north-facing slopes of Tehachapi Mountains; not known south or east of this mountain range

*Species highlighted in bold were observed within or adjacent to the proposed project and construction footprint.

SE = State Endangered; ST = State Threatened; CFP = California Fully Protected by CDFG statutes; CSC = California Species of Special Concern; FSC = Federal Species of Concern (watch list species) by the U.S. Fish and Wildlife Service and/or Bureau of Land Management; FE = Federally listed as Endangered; FT= Federally listed as Threatened; CNPS List 1B: rare, threatened or endangered in California and elsewhere; CNPS List 2: rare or endangered in California, but more common elsewhere

Plants. No federal- or state-listed endangered or threatened plants or CNPS List 1B or List 2 species were located within the survey area. One rare plant, round-leaf filaree (*Erodium macrophyllum*) (CNPS List 2), was detected in the foothills north of the project footprint. This area, which would not be directly or indirectly affected by the proposed project, has the potential to support other rare species.

3.2.4 Impacts and Mitigation Measures

3.2.4.1 Criteria for Determining Significance

For this analysis, the proposed project may result in significant impacts if the project would:

- Criterion B1: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a threatened or endangered, candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.
- Criterion B2: Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or the U.S. Fish and Wildlife Service.
- Criterion B3: Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means.
- Criterion B4: Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.
- Criterion B5: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Criterion B6: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan.

3.2.4.2 Project Impacts

The criteria described above for determining the significance of project impacts are equally applicable to the construction, operation, and routine maintenance phases of the proposed project. While most of the effects on biological resources are limited to the construction phase, such as habitat disturbances and construction noise or lighting, others are initiated in the construction phase and perpetuated throughout operation and routine maintenance, such as the permanent loss of habitat.

Impacts to Sensitive Species or Their Habitat (Criterion B1)

Construction

The proposed project area does not currently support federal- or state-listed threatened or endangered species, but there have been approximately six federal and/or state bird species of concern observed using the project area, including the Aqueduct adjacent to the proposed project site. Burrows (i.e., nests), and areas used by the burrowing owl for perching and foraging were found in the unnamed drainage north of the proposed reservoir site (see Figure 3-9). Although no evidence of the burrowing owl was located within the project or construction footprint during the wildlife surveys, its presence within this area cannot be discounted. A nest of

the California horned lark was found within the reservoir construction area and a family group of the loggerhead shrike was identified near the outlet works (see Figure 3-9).

The coast horned lizard, a federal species of concern and state species of special concern, is also present near or within Laydown Area #1 (see Figure 3-9), and the southern access road, rock slope protection and bypass would directly affect areas potentially occupied by this species at the southern end of the unnamed drainage. Two observations of horned lizard scat, most likely from the coast horned lizard, were recorded during the wildlife surveys (see Figure 3-9). Focused surveys are proposed among the mitigation measures to confirm this identification as well as the extent of the species within the project area. Exclusion fencing would typically be constructed in inhabited areas to minimize impacts to the coast horned lizard in areas that cannot be avoided by project impacts, and any coast horned lizards that are observed in the project area would be moved outside of the fencing. This method is most effective during the times of the year when the species is active (i.e., generally from March to October, depending on the temperature). However, the bypass channel near to where the lizard scat was observed must be constructed as soon as possible in February 2005 when the species would still be hibernating. Since exclusion fencing or relocation in February would not be an effective form of mitigation, it is likely that there will be a loss of individual coast horned lizards and their habitat resulting in a significant unavoidable impact (**Class I**).

Vibrations and noise from vehicles and equipment, and lights from nighttime construction would also indirectly disturb the lizard as well as most other wildlife within or near the proposed project area resulting in potentially significant impacts (**Class II**).

The proposed project would temporarily affect approximately 64.5 acres, and would permanently affect approximately 215.5 acres of terrestrial habitat for construction of project facilities. Figure 2-5 illustrates the temporarily and permanently impacted areas. All temporarily impacted areas would be revegetated when construction is complete. Immediately southwest of the proposed project site, on the other side of the Aqueduct, 239 acres would be set aside to compensate for permanent losses (see Figure 2-2). Table 3-16 provides a summary of the vegetation types that would be permanently and temporarily affected by the proposed project. Most of the permanently impacted area would consist of vegetation classified as rabbitbrush succession and herbaceous succession with relatively low plant diversity (see Figure 3-8). Rabbitbrush and exotic herbs, including filaree (*Erodium cicutarium*), foxtail grasses (*Bromus*, *Hordeum*), and mustard (*Hirschfeldia*), dominate the cover in these areas. Some native and nonnative trees present at the bottom of the drainage would be lost. Tree cover in this arid, sparsely vegetated habitat, regardless of its density or composition, is a valuable habitat resource for wildlife that has been diminished by past agricultural activities. Although tree cover within the portion of the unnamed drainage that would be permanently affected is sparse, elimination of this habitat resource within this area would be potentially significant (**Class II**).

The permanent loss of 198.5 to 215.5 acres of wildlife habitat would be locally significant in part because habitat in arid regions is not in itself resource rich and remaining unaffected habitat cannot simply “absorb” displaced wildlife. The loss of this habitat would be potentially significant (**Class II**). In addition, the site supports bird and reptile species of concern whose populations are already known to be affected by habitat loss. Native birds protected by the MBTA and the California Fish and Game Code are known to nest on the

proposed

Table 3-16. Summary of the Acreage of Temporary and Permanent Impacts by Vegetation Type (in acres)

Vegetation Type ²	Temporary	Permanent	Permanent (Spoil #2)
Cultivated Trees ³	2.4	1.3	None
Dry Meadow	0.7	None	None
Herbaceous Succession	24.6	102.8	15.1
Rabbitbrush Succession	5.3	70.2	1.9
Terrace Grassland	5.2	2.9	None
Upland Succession	None	0.7	None
Wash Scrub Succession	9.6	10.9	None
Unvegetated or unsurveyed ⁴	16.7	9.7	None
TOTAL AFFECTED	64.5	198.5	17

Note(s)

- (1) These numbers are approximate since the interpretation of limits between vegetation types is somewhat subjective.
- (2) For a detailed description of all vegetation types found within the survey area see Appendix C.1.
- (3) The cultivated trees vegetation type refers to a few tamarisk planted at the bottom of the lower part of the unnamed drainage.
- (4) Includes the aqueduct and the eastern portion of access roads that were outside the survey area. Temporary roads are existing roads that have become overgrown or new roads located in rabbitbrush succession and herbaceous succession that will be revegetated when construction is complete.

project site or near areas that might be affected by the proposed project. Loss of habitat for bird species would also have secondary effects on other components of the biological community such as mammal prey and insect populations. So despite its history of disturbance, the proposed project site offers important wildlife habitat resources that go beyond plant diversity; e.g., topographic variation in the gullies and drainages, subsurface and surface moisture in the drainage, variety of insect and rodent prey (although maybe not abundant), and connectivity to the adjacent foothills.

An equivalent acreage of habitat located southwest of the proposed project site, on the other side of the Aqueduct would be acquired for enhancement and preservation to compensate for permanent losses, although the site would likely not provide the same set of habitat resources or would animals necessarily relocate there on their own. The acquired land incorporates a segment of the Oso Creek drainage that would nevertheless provide other opportunities for enhancing riparian habitat as well as replacing native species in nonnative herbaceous and rabbitbrush cover similar to the proposed project site. Because bird species of special concern are already known to forage and nest within the proposed project area, pre-construction surveys would also be carried out to discount the presence of breeding or nesting pairs of native bird species prior to disturbing the site. Depending on the results of those surveys, measures would be implemented to ensure that temporarily disturbed areas would be restored and that construction of permanent facilities avoids direct impacts to breeding or nesting birds. It is anticipated that with appropriate onsite measures to avoid species of concern coupled with the enhancement of habitat on acreage acquired onsite that this impact would be reduced to a less-than-significant level (**Class II**).

The spoil area (Spoil #1 in Figure 2-5) would be located on an elevated terrace subject to constant winds and adjacent to gullies formed by erosional processes that create colluvial and alluvial deposits at their base. The spoil pile would occupy approximately 75 acres. During construction, BMPs and other mitigation measures would be implemented to control wind and water erosion on the spoil pile and embankment separating it from the reservoir as well as ensure that erosion on the land terrace supporting the spoil would not be accelerated,

which might disturb adjacent habitat (see the Environmental Commitments outlined in Section 2.5 and the air quality mitigation measures identified in Section 3.1).

During the construction phase, a small segment of the Aqueduct at the headworks before Cottonwood Chutes would be drained to construct the connection between the reservoir outlet and the Aqueduct. Prior to any action that may result in the loss of fish in the Aqueduct, the CDWR routinely notifies the CDFG and a decision is made whether the fish should be rescued and relocated, or donated for consumption. Because the reservoir and much of the other facilities are constructed by excavation, it is also likely that animals would fall into these areas, necessitating implementation of measures to reduce the potentially significant impacts associated with the loss of wildlife from such accidents (**Class II**).

Implementation of the following mitigation measures along with the standard BMPs described in Section 2.5 would reduce potentially significant impacts to sensitive species, wildlife in general or their habitat due to construction of the Tehachapi East Afterbay to less-than-significant levels (**Class II**):

BIO-1 The surface of temporarily impacted areas and the surface of the spoil pile(s) shall be seeded with a native seed mix suited to local climatic and soil conditions. Species known to exist at the site based on survey lists provided in Appendix C or from other surveys within the project area shall be preferred in the seed mix. Unlike the temporarily disturbed areas, the objective of revegetating the spoil pile(s) shall not be to reestablish preexisting vegetation conditions, but rather to ensure stability of the surface. The seeding surface shall be prepared by replacement of topsoil, scarification of compacted surfaces and wetting to maximize seed germination. The method of seeding shall be suited to the windy conditions that persist within the project area (i.e., broadcast seeding shall not be used). Temporary irrigation shall be used occasionally to establish plants. In order to facilitate reestablishment of native plant species in the seed mix and already present in the seed bank in the replaced topsoil, nonnative species shall be removed during the first two growing seasons, primarily through manual and other mechanical means in temporarily disturbed areas only (i.e., the spoil piles are excluded from this requirement). Chemical herbicides may be used in small affected areas if manual methods are ineffective. The use of herbicides and pesticides for maintenance purposes on revegetated areas or within the habitat enhancement area described in BIO-4 below shall be done in a manner consistent with United States Environmental Protection Agency (USEPA) label instructions, the California Department of Food and Agriculture, the Department of Health, and the Department of Industrial Relations.

BIO-2 Topsoil removed from permanently affected areas shall be temporarily preserved in stockpiles for replacement on the surface of the spoil pile(s) or revegetated areas. The top six inches or the A horizon if it can be determined by visual means shall be segregated as topsoil. Mixing of the topsoil shall be kept to a minimum during stockpiling. As much as possible the height of temporary topsoil stockpile(s) shall be kept to a maximum of five feet as long as there is sufficient space available. Stockpiles shall be formed in rows to avoid or minimize soil compaction. Topsoil stockpiles shall be protected from wind erosion consistent with mitigation measure AQ-1. They shall also be protected from water erosion, compaction, and any other actions that may cause loss, mixing, or other disturbance. Topsoil stockpiled for less than one

year shall be stabilized and protected from wind or water erosion by any of the following options: chemical soil stabilizer; vegetated cover of native species or infertile grasses; tarp or other inert material; or watering at the surface. If topsoil must be stockpiled for more than one year, it shall be watered and seeded with native annuals known to exist in the project area or infertile grass seed to ensure the retention of nutrients and to sustain soil micro fauna. Topsoil placed on the surface of the spoil pile(s) shall be compacted to pre-project density and recontoured to ensure stability and continuity with existing topography. Because even the one-year time frame may result in a substantial loss of soil micro fauna, when soil is replaced it shall also be supplemented with live soil inoculum suited to the area. Inoculum may be obtained commercially or locally from adjacent areas depending on such factors as the availability of a local or commercial source, relative disturbance to source areas and the likelihood of success. Topsoil stockpiles shall be periodically inspected, especially during and after precipitation events, to monitor for erosion or soil loss. Areas where erosion or soil loss occurs shall be corrected with measures such as replanting the area with native or infertile vegetative cover; respraying the surface with soil stabilizer; reducing the height of the stockpile (if more than five feet in height); and/or reducing the slope of the stockpile surface. Corrective actions shall be implemented prior to the next rain event, but no more than seven working days after discovery of erosion or soil losses.

BIO-3 The disturbance or removal of vegetation within the project and construction footprint shall not exceed the minimum reasonably necessary to complete operations. Precautions to avoid damage to non-target vegetation by people or equipment shall include, but not be limited to the following: flagged construction area limits, strict adherence to established access roads by trucks and construction equipment, and minimized turning areas.

BIO-4 The CDWR shall develop and implement a Habitat Enhancement Plan for an acreage equivalent to 1.1 acres for every acre of habitat permanently affected by the project (i.e., 215.5 acres). The enhancement area shall be located approximately southwest of the proposed Tehachapi East Afterbay project site incorporating part of the Oso Creek drainage. The goal of the Plan shall be to improve habitat resources similar to those that will be lost at the proposed project site. Some of the measures that shall be considered include installation of owl boxes or burrows, establishment of woody species or other plant species suited to existing hydrological conditions along the Oso Creek drainage, restoration of soil flora and fauna, reestablishment of hydrological connections, and control of exotics. Species known to already exist at the site based on survey lists provided in Appendix C or from other surveys within the project area shall be preferred in any revegetation effort. The Plan shall also consider the feasibility and effectiveness of transplanting plants or collection of seed from plants that will be impacted by the project footprint. The Plan shall provide measures to address incidental disturbance or impacts caused by implementation of any of the enhancement measures identified in the Plan. The Plan shall also incorporate mitigation measures BIO-14 and BIO-15 as well as other measures to improve habitat quality within the enhancement area. The Plan shall be submitted to the California Department of Fish and Game (CDFG) for their review.

BIO-5 Pre-construction² bird surveys shall be conducted to identify the presence of breeding pairs or active nests of special status bird species, species protected by the Migratory Bird Treaty Act (MBTA), or species protected by the California Fish and Game Code, within the project and construction footprint plus an additional buffer distance of 500 feet. The surveyed area, including the 500-foot buffer, shall also include existing and newly proposed access roads to the project site. Existing roads need to be included in the survey because of the anticipated increase in traffic disturbance and because portions of some existing roads are overgrown with vegetation. In the event that surveys indicate habitat occupied by breeding pairs or active nests of special status bird species, species protected by the MBTA, or species protected by the California Fish and Game code within 500 feet of the project or construction footprint, some or all of the following measures shall be implemented:

- The occupied area plus an additional no disturbance zone will be flagged and/or fenced until a qualified biologist has determined that all young have fledged. The size of the no disturbance zone shall be determined in consultation with the CDFG and/or the United States Fish and Wildlife Service (USFWS).
- Clearing and grubbing of vegetation shall be conducted during the months prior to March 1 and after July 30. CDWR shall consult with CDFG and USFWS when work schedules conflict with this general guideline and impacts to nesting birds protected under the MBTA or the California Fish and Game Code are imminent.
- Where ambient noise levels are less than 60 dBA and it is determined that construction related noise will cause noise levels to exceed 60 dBA, or where the ambient noise levels are greater than 60 dBA and it is determined that construction related noise will cause noise levels to exceed the ambient level by 5 dBA, a temporary sound wall shall be constructed between the sensitive area and the construction related noise source³. Monitoring shall be conducted at 50 feet and 100 feet from the sound wall or at the boundary of the sensitive habitat if the habitat is more than 100 feet from the construction site. This measure would be applicable to survey areas that yield positive results and would be limited to the breeding and nesting season for the sensitive bird species identified in the surveys.
- Night lighting shall be carefully aimed, shielded and of the minimum reasonably necessary intensity to reduce illumination spillover from work areas that may impact migratory birds or plants and animals, in general.
- If an active bird nest will be affected by construction activities within 500 feet of the nest, work shall be temporarily suspended within an appropriate buffer area as designated by the CDWR Mitigation Monitor.

BIO-6 Prior to construction, potentially suitable burrowing owl burrows present within 500 feet of the construction area and all access roads shall be surveyed by a burrowing owl expert to determine whether they are occupied. Unoccupied burrows shall be blocked to prevent occupation by burrowing owl using established CDFG methods and protocols. The CDFG shall be notified of any occupied burrows and these shall be monitored to determine their nesting

² Construction is defined as any activity related to construction, including but not limited to mobilization of equipment, vehicles or personnel, and ground clearing or preparation.

³ The 60 dBA limit is not a regulatory requirement; rather it has been established by consensus of experts, local and resource agencies, including the USFWS as a threshold for establishing noise impacts. It is estimated that among other things, noise levels above 60 dBA may interfere with communication among birds and other wildlife.

status. No burrows with active nests shall be disturbed until a qualified biologist has determined that all birds have fledged.

- BIO-7** A no-disturbance zone for burrowing owl shall be established within the unnamed drainage north of the project site. The no-disturbance zone shall extend 500 feet beyond the area where evidence of burrowing owl activity was identified (Figure 3-9). Although removed from the construction and project footprint or access routes, the no-disturbance zone will be established to reduce the risk of unnecessary or mistaken trespassing during construction. The zone shall be flagged in the field and identified in sensitive resource information provided to all construction workers (see BIO-9).
- BIO-8** To reduce wildlife deaths from accidental falls into excavated areas, all deep or steep-walled excavated areas shall be covered, provided with wildlife escape ramps or surrounded by an approved exclusionary fence. The temporary fence shall be hardware cloth or of similar materials that are approved for use by USFWS and CDFG. All excavated areas shall be inspected daily, and the CDWR Mitigation Monitor shall be notified immediately for the removal of any trapped wildlife. To further protect wildlife, all food-related trash will be disposed of in closed containers and removed at least once a week. Feeding of wildlife shall be prohibited. It shall be prohibited to bring pets or hunt on the construction site.
- BIO-9** A training program shall be implemented so that among other things, workers can visually recognize special status species that may be present on the project site, identify the location of no disturbance zones, and adequately understand and implement biological mitigation measures.
- BIO-10** Focused surveys for the coast horned lizard shall be conducted within the unnamed drainage and the alluvial floodplain to the east, south of spoil pile #1, that present suitable habitat conditions for the lizard and that may be temporarily disturbed during construction and permanently affected by the bypass, access roads and rock slope protection. Surveys shall be conducted in September/October 2004 when the species is more active prior to winter hibernation. The surveys shall be conducted using established protocols to maximize the likelihood of observing the species, and shall rely on a combination of several walking surveys at times of the day when coast horned lizards are most active and scat surveys to indirectly estimate population size. The objective of the surveys is to estimate the extent of occupied habitat that overlaps with temporarily and permanently impacted areas. The estimated occupied area will be delineated on a map, flagged in the field and made available to all project personnel. This measure shall be planned and implemented in coordination with CDFG.
- BIO-11** The Oso Creek Drainage within the area that will be acquired to compensate for permanent impacts will also be surveyed according to the method described in BIO-10. A habitat assessment will be completed to determine if the site may be enhanced to improve suitable coast horned lizard habitat, and to potentially relocate coast horned lizards found during project construction. Potential enhancement measures that can be implemented in the compensation

acreage, such as improving ground cover for the species, will be incorporated into the Habitat Enhancement Plan described in BIO-4.

- BIO-12** Despite the fact that exclusion, capture and relocation measures typically implemented to reduce impacts to coast horned lizards would be relatively ineffective during the winter months when the initial ground disturbance will occur, CDWR will consult with the CDFG to determine if such measures may still be implemented in such a way as to have a partial effect on reducing impacts to coast horned lizards. In addition, a Biological Monitor(s) will be present to capture coast horned lizards that are disturbed from their habitat and that are at risk during the initial ground disturbance. A protocol will be established in coordination with CDFG prior to ground disturbance to define the method of capture, handling and relocation of any coast horned lizards. Surveys defined in BIO-9 and BIO-10 will assist in establishing whether suitable relocation habitat may exist within the enhancement area defined in BIO-4.

Operation and Routine Maintenance

The proposed reservoir would not be managed as a fishery and, in fact, the growth of dense or woody vegetation on the southern embankment of the reservoir would be discouraged through the use of herbicides like Roundup, and the growth of algae in the water would be prevented by the use of copper sulphate. It is necessary to control the growth of algae, as it may affect the quality of the water, and plants may compromise the integrity of the liner or embankment. The storage, handling, and application of pesticides for maintenance of the facility are actions routinely carried out at other CDWR facilities along the Aqueduct. The application of aquatic pesticides is carried out under the conditions set forth in a general statewide NPDES permit that covers all SWP facilities. The statewide permit for aquatic pesticide application would be amended to include the Tehachapi East Afterbay. In general, the handling and use of pesticides must follow USEPA and California guidelines.

Sediment would be removed approximately every five to ten years according to an established protocol consistent with other similar CDWR facilities, which is another reason why habitat resources for fish or other aquatic species would be limited. To remove sediments, the reservoir must be drained. Typically, the CDWR advises the CDFG prior to sediment removal in the event that there are concerns about relocating fish. Adult fish, fry, or larvae may become entrained into the reservoir outlet, but this is no different than the existing outlet from Pool 42 and would not change the way fish currently pass through the Alamo Powerplant. Of the fish species that may be present within the Aqueduct, the hardhead, Sacramento splittail, and the California roach are California species of special concern (Appendix C.3). However, because of the distance these species would have to travel along the Aqueduct from its origin in the San Joaquin delta, the predominance of nonnative species such as carp and bullhead in the Aqueduct, and the resource-poor environment that would persist in the reservoir, it is unlikely that the reservoir would support sustainable populations of sensitive fish or other aquatic species. Sediment removed from the reservoir would be added to the spoil pile and/or the potential supplemental spoil pile. The disturbed area shall be revegetated consistent with mitigation measure BIO-1.

During operation non-avian wildlife may also accidentally enter the proposed project facilities and may not be able to exit, resulting in accidental death.

In conclusion, it is unlikely that the proposed project site would attract sustainable populations of sensitive species, especially fish or waterfowl, because the aquatic habitat provided by the proposed reservoir is relatively poor. Therefore, the potentially significant impact to sensitive species or their habitat during the operational phase of the proposed project would be reduced to a less-than-significant level with the following mitigation measure (**Class II**).

BIO-13 Fine-mesh or metal exclusion fence shall be added to the bottom 18 inches of the reservoir fence to reduce entry of small mammals and reptiles.

Impacts to Sensitive Natural Communities (Criterion B2)

Construction of the reservoir inlet and outlet structures, weir, bypass channel, and maintenance roads would affect approximately 4,000 feet along the unnamed drainage (see Figure 2-2). Temporary improvement of an existing dirt access road would also affect a small segment of the Oso Creek drainage (see Figure 2-2). Both drainages have regulatory protection under Section 1602 of the Fish and Game Code. The affected segment of the unnamed drainage does not support substantial areas of riparian habitat. There are tamarisk (*Tamarix* sp.), red willow (*Salix laevigata*), and mulefat (*Baccharis salicifolia*) scattered throughout. Flow characteristics in this drainage are limited to the bottom of the U-shaped canyon becoming indiscernible toward the southern limit near the aqueduct. The bypass culvert channel would conduct drainage through and around the reservoir inlet and outlet so that surface flow would not be interrupted. Constructed facilities would, however, act as a barrier to subsurface flow potentially resulting in more arid conditions for the vegetation immediately downstream. The road crossing at the Oso Creek drainage is abutted by willow, cottonwood (*Populus fremontii*), and rabbitbrush. At this crossing, the access road would be temporarily widened approximately five feet on each side with gravel material to accommodate construction traffic. Where the access crosses the drainage, the ordinary high water mark (OHWM) is approximately 30 feet plus the adjacent riparian corridor.

Although the area affected by the proposed project that is subject to Section 1602 jurisdiction may be relatively small, its importance to local wildlife populations makes this impact potentially significant despite the BMPs (see Section 2.5) and other measures that have already been incorporated into the proposed project. However, the impact would be reduced to less-than-significant levels with the mitigation proposed below (**Class II**). A careful delineation of the effects to the unnamed drainage and Oso Creek drainage would be provided in the 1602 notification that is to be submitted to the CDFG and additional mitigation for these impacts may be defined in the conditions of the Streambed Alteration Agreement.

Implementation of the following mitigation measures would reduce potentially significant impacts to sensitive natural communities due to construction of the Tehachapi East Afterbay to less-than-significant levels:

BIO-14 Any trees with a diameter at breast height (dbh) of two inches or greater that are damaged or removed as a result of the project shall be replaced at a ratio of 3:1. The number, species, approximate age, and size of the affected trees shall be determined prior to clearing and grubbing. The CDWR shall replace the trees according to the conditions defined by the CDFG in the Streambed Alteration Agreement.

BIO-15 Replaced trees shall be monitored for five years to ensure an 80 percent success rate. Trees shall survive without irrigation for at least the final two years of the monitoring period. Trees shall be replanted if the success criterion is not attained either through the originally planted

- trees or through natural recruitment. In addition to the criteria defined in this measure, CDWR shall follow other criteria tree replacement and monitoring as defined by CDFG in the conditions of the Streambed Alteration Agreement.
- BIO-16** Temporary improvements that may be needed for the southern project access where it crosses Oso Creek shall be done while the drainage is dry. Because this is an ephemeral drainage, it is feasible to carry out any improvements while the drainage is dry without the need to divert flows. Vehicles shall not be driven or equipment operated in water-covered portions of a stream or where riparian vegetation or aquatic organisms may be destroyed. The CDFG shall be consulted when construction activities cannot avoid water diversion.
- BIO-17** Improvements to or construction of the bypass culvert or access roads crossing either the unnamed drainage or Oso Creek drainage shall be maintained such that they do not constitute a barrier to downstream surface flow, or the upstream or downstream movement of aquatic or terrestrial life, or cause an avoidance reaction that impedes their upstream or downstream movement.
- BIO-18** If there is any temporary alteration to the low-flow channel or the bed and bank of the unnamed drainage or Oso Creek drainage these shall be returned as closely as possible to their original topography, configuration and width, without creating future erosion problems. Re-contoured slopes and all other cleared areas shall be stabilized to prevent erosion.

Impacts to federally protected wetlands (Criterion B3)

All of the drainage features or surface waters within the proposed project area are isolated intrastate waters and are, therefore, not subject to Corps' jurisdiction under Section 404 of the Clean Water Act. Therefore, there is no impact under this criterion.

Interference with Wildlife Movement (Criterion B4)

By virtue of its proximity to the foothills of the Tehachapi Mountains, the proposed project area could serve as a corridor for wildlife movement. Although the Aqueduct creates a barrier to wildlife movement to other drainages, it also tends to redirect wildlife southeast along the remaining portions of the Oso Creek drainage. The unnamed drainage serves as a local corridor from the Tehachapi foothills to the north to the eastern Antelope Valley. Construction of the proposed project would interrupt that movement. The vegetation within the project footprint historically has been disturbed by anthropogenic activities and generally is not very diverse. During construction, as much as 64.5 acres would be temporarily disturbed. Construction disturbance would persist for approximately 17 months and there would be several years before vegetation cover would reestablish to its preexisting condition in temporarily disturbed areas. During the operational phase, the proposed Tehachapi East Afterbay could increase the obstruction to wildlife movement by occupying up to a total of 215.5 acres adjacent to the Aqueduct. In conclusion, the site is proximate to an important wildlife corridor along the Tehachapi foothills, and provides a local wildlife corridor that would be interrupted by the proposed project. Nevertheless, the Aqueduct already creates a barrier to wildlife movement, especially for non-avian wildlife. The additional acreage that would be permanently affected has limited habitat resources for migrating wildlife and is directly adjacent to the Aqueduct. Therefore, this impact would be less than significant (**Class III**).

Conflict with Local Policies or Ordinances Protecting Biological Resources (Criterion B5)

The proposed project area is in an unincorporated area of Kern County and does not overlap with any local planning areas that support policies or ordinances protecting biological resources. Therefore, there is no impact under this criterion.

Conflict with the Provisions of a Conservation Plan (Criterion B6)

There are no conservation plans that overlap with the proposed project area or that would be indirectly affected by the proposed project actions. Therefore, there is no impact under this criterion.

3.2.4.4 Impact and Mitigation Summary

Table 3-17 presents a summary of biological impacts and mitigation.

Table 3-17. Impact and Mitigation Summary – Biological Resources

Proposed Project Impact	Class	Mitigation Measures
Project construction or operation may affect habitat used by bird species that are federal and/or state species of concern, protected by the Migratory Bird Treaty Act and protected by the California Fish and Game code; sensitive or special status species may be present in the area at the time of construction or during operational activities.	II	BIO-1 through BIO-9
Project construction is likely to affect the coast horned lizard and its habitat; mitigation measures that can feasibly be implemented will not be completely successful in avoiding a loss of individuals and their habitat.	I	BIO-1 through BIO-4, and BIO-8 through BIO-12
Project operation will affect sensitive species and their habitat.	II	BIO-13
Project construction will affect segments of the unnamed drainage and Oso Creek, which are under the jurisdiction of the California Department of Fish and Game.	II	BIO-14 through BIO-18
The project would not interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.	III	None required.
There are no federally protected wetlands within the project area.	No Impact	None required.
There are no local policies or ordinances protecting biological resources that apply to the project site.	No Impact	None required.
There are no lands dedicated to a Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or state habitat conservation plan that overlap with the project area or that may be affected by project actions.	No Impact	None required.